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ABSTRACT

The activities in this document are designed for elementary students by the American Coal Foundation. The activities contained in this booklet are as follows: (1) Coal Flowers; (2) Coal Formation; (3) TV Documentary on Coal; (4) Controlling Our Rate of Consumption; and (5) The Geologists' Dilemma. The last two activities were developed by Indiana Teachers through workshops sponsored by the Indiana Council for Economic Education and Public Service of Indiana. (JRH)

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ED 407 239

COAL ACTIVITIES FOR

ELEMENTARY

STUDENTS

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COAL FLOWERS

MATERIALS:

Shallow glass bowl
Coal
Glue
Twigs or toothpicks
Salt
Laundry blueing
Water
Ammonia
Food coloring
Bowl

ACTIVITY:

1. In a shallow glass dish place several small lumps of coal.
2. Interwork twigs and/or toothpicks with coal. You may need to use glue to hold the twigs and/or toothpicks to the coal.
3. In a separate bowl mix:

   6T salt
   6T laundry blueing
   6T water
   1T ammonia

4. Pour the mixture over the coal mound.
5. Sprinkle dots of food coloring randomly over the mound.
6. Crystals will begin to form within several hours.

TIP: If your grocery store does not carry laundry blueing, check with the local pharmacist.

COAL FORMATION

OBJECTIVE: The student should be able to simulate and observe the conditions present in coal formation.

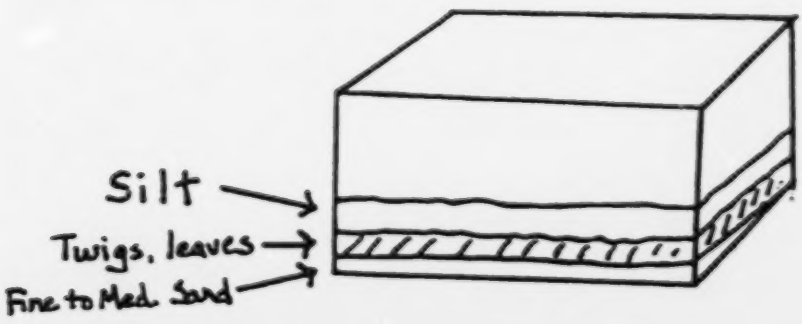
MATERIALS:

Aquarium
Fine to medium grained sand
Fern fronds
Twigs
Plant Leaves
Screen or sifter
Fine silt
Sand

ACTIVITY:

1. Take an aquarium and place about 6 inches of water in it.
2. Spread about 2 inches of fine to medium grain sand on the bottom.
3. Drop in small leaves, sticks and fern fronds. Let it stand for about two weeks. Write down observations of changes in decomposition and color.
4. Wait another two weeks. Then sift fine silt and sand to a depth of 2 inches. Notice the "coal layer".
5. Take out the surface water and let silt and sand dry for a few weeks. There will be plant "fossil" imprints left where the sediments are removed and broken.

TIP: This is a smelly activity. If you have an area where you can put this out of the way and observe occasionally you will like it more!



TV DOCUMENTARY ON COAL

GRADE LEVEL: Fifth

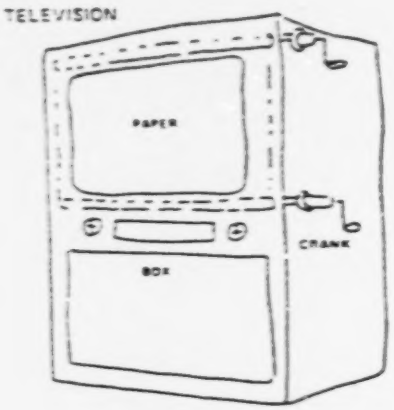
TIME NEEDED: 5 to 7 class periods

OBJECTIVE: Class will display an overall understanding of information on coal, through outlines, reports and visual aids.

MATERIALS:

Provided by teacher:
Homemade television set
Paper roll
Tape recorder
Tapes
Resource books
Art Paper

Provided by students:
science books
science notes
resource books
art supplies



ACTIVITY:

1. Teacher will divide students into five groups. Each group will contain students having the following strengths: artistic, expressive reading, outlining, legible handwriting and science comprehension.

2. Each group is assigned one of the following topics:

   How coal is formed
   How coal is mined
   How coal is used to create energy
   Environmental impact of coal mining
   Benefits from coal energy

3. Each group will present a final product to consist of:

   An outline of the topic
   A narrative written following outline
   Two to four illustrations representing narrative; half of the illustrations may be graphs
   Tape recording of narrative
   List of people in the group and duties

CONTROLLING OUR RATE OF CONSUMPTION

Activity developed by: Indiana Teachers through workshops sponsored by the Indiana Council for Economic Education and Public Service of Indiana

GRADE LEVEL: 4-6

OBJECTIVE:

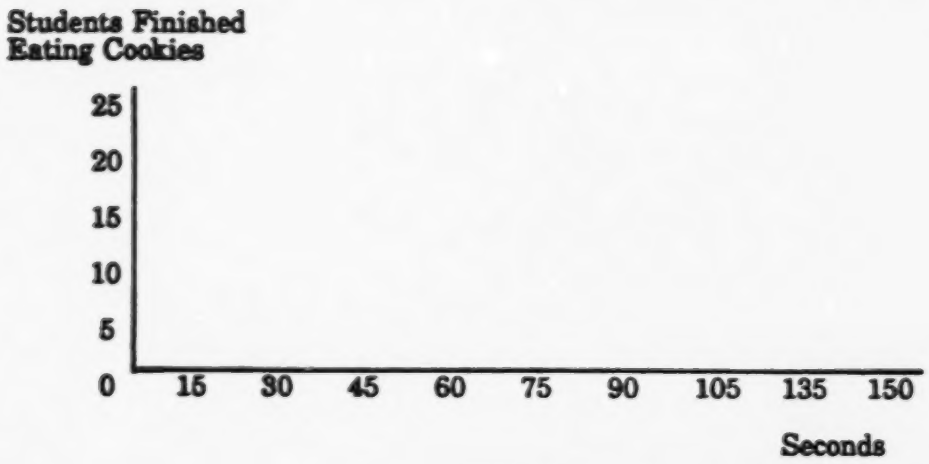
1. Determine that resources are limited, and thus scarce
2. List some energy conservation measures

MATERIALS: Two chocolate cookies per pupil

PROCEDURE:

1. Give each pupil a cookie. When the signal is given, the pupils will begin eating the cookies. Each student must raise a hand and keep it raised when he or she is finished. Count the hands raised every 15 seconds until all the cookies are eaten. At the last count, all hands should be raised.

2. Create the graph indicating how many pupils finished eating every 15 seconds.



3. One cookie equals one coal deposit. Analyze the graph with the pupils. How many different coal deposits were consumed after 15 seconds? After 30 seconds? After 45 seconds? etc.

THE GEOLOGISTS' DILEMMA

Activity developed by: Indiana Teachers through workshops sponsored by Indiana Council for Economic Education and Public Service of Indiana

GRADE LEVEL: 4-12

OBJECTIVE:

1. Identify when a condition of scarcity exists
2. Determine that resources are limited, and thus scarce
3. List some of our chief energy sources

MATERIALS:

A glass jar
Beads - four differenct colors
Cornmeal - same quantity as beads

About 50 percent of the beads should be black, 3 percent red, 10 percent white and 37 percent blue. Since the beads represent our energy sources, which are unknown to all, do not attempt to count all the beads. Note: Any resources not found the first time are waiting to be recovered the next time the game is played.

PROCEDURE:

1. Throw the beads and cornmeal high into the air, letting them scatter over the room. Divide the class into five companies. Each of the companies will search for one of our energy resources represented by one color bead.

   Company #1: black bead (coal)
   Company #2: red bead (uranium)
   Company #3: white bead (natural gas)
   Company #4: blue bead (oil)
   Company #5: cornmeal (solar)

   NOTE: Do not interfere or comment if any company starts to collect all colors.

2. Allow the companies to search for one minute. Have each company count its resources. Keep the resources in separate piles. Record the totals for each group for each round on the chalkboard.